

Serial No.: 10/008,451
Examiner: Linh V. Nguyen

REMARKS

Claims 1 through 34 have been cancelled. Claims 35 through 48 have been added.

The Office Action rejected claims 1, 4, 6 through 8, 10 through 17, 19, 20 through 28, and 30-32 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,166,448 to *Powell* (the *Powell* reference). However, the *Powell* reference fails to disclose or suggest the elements of the claims.

The present invention of claim 1 requires a coupling circuit, coupled to the circuit for generating a distorted signal, wherein the coupling circuit is capable of introducing a relatively small amount of power from the input signal into the circuit and further capable of reflecting the distorted signal generated by the circuit back onto the input signal path without being physically coupled to the input signal path, and wherein the coupling circuit includes a microstrip having a predefined shape and located a predetermined distance from the signal path leading into the power amplifier such that the relatively small amount of power from the input signal is related to the predefined shape of the microstrip and the predetermined distance from the signal path. As shown in Figures 4 and 5 of the present application, the predistortion linearizer 402 is located a predetermined distance "d" from the input signal path 416 and is not in physical contact with the input signal path 416. As explained in the specification at page 16, lines 20 through 25:

"It should be noted that the predistortion linearizer 402 does not physically contact the signal path 416 or the power amplifier 406. As such, the predistortion linearizer 402 does not affect the signal path 416 nor does the predistortion linearizer 402 affect the operation of the power amplifier 406."

Thus, the predistortion linearizer of the present invention is able to reflect a distorted input signal onto the input signal path of the power amplifier without being in physical contact with the input signal path or affecting the signal path. This feature provides significant advantages to the invention.

The *Powell* reference fails to disclose the requirements of claim 34. Instead, the *Powell* reference shows in Figure 2, a coupler 307 that connects an input to distortion linearizer circuit 312 and a second coupler 308 that connects the output of time delay 310 to 313 and a third coupler 309 that couples signal back into the main signal path, as described at column 5, lines 14

through 30. The *Powell* reference never discloses or suggests that the couplers 307, 308 or 309 are not physically coupled to the input signal path. It can not be inferred that the couplers are not physically coupled to the input signal path since the generally accepted definition of a coupler includes a physical interface. As defined in in the ISA dictionary, a copy of which is attached hereto, a coupler is:

1. Physical interface between trunk and spur or trunk and device [S50.02].
2. In data processing, a device that joins similar items.
3. In fiber optics, a device which joins together three or more fiber ends -- splitting the signal from one fiber so it can be transmitted to two or more other fibers. "Directional," "star," and "tee couplers" are the most common.

Thus, the term "coupler" in the *Powell* reference without more description would infer a physical interface between the input signal and the distortion linearizer 312. The Office Action fails to cite anywhere in the *Powell* reference where it describes the couplers in Figure 2 as being anything more the typical coupler with a physical interface. Though Figure 2 illustrates a gap, this figure does not overcome the presumption that it is a typical coupler as described in the specification. Moreover, the *Powell* reference discloses two separate coupler circuits, a first for coupler 307 for passing the input signal and distortion generation and a second coupler 309 for coupling back to the main signal path. Finally, the *Powell* reference describes that signal is "coupled back" into the main signal path by the second coupler 309, at column 5, lines 28 through 30. This description teaches away from the present invention that the coupling circuit is capable of "reflecting the distorted signal" back onto the input signal path. This description further iterates that the couplers are typical physically coupled couplers.

Furthermore, the *Powell* reference provides no description of modifying any distance between a signal path and the couplers 307, 308 or 309, and certainly provides no description of a microstrip or that the amount of power from the input signal may be related to the predefined shape and the predetermined distance from the signal path.

Similarly for independent claims 39 and 46, the *Powell* reference reference fails to disclose or suggest the requirements of the claims. The *Powell* reference shows in Figure 2, a coupler 307 that connects an input to distortion linearizer circuit 312 and a second coupler 308 that connects the output of time delay 310 to 313 and a third coupler 309 that couples signal back into the main signal path, as described at column 5, lines 14 through 30. The *Powell* reference

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never discloses or suggests that the couplers 307, 308 or 309 are not physically coupled to the input signal path or that a coupling factor or a distance may be modified to adjust a distorted signal that reflected back onto the signal path.

In addition, the Office Action rejected prior claim 33 over U.S. Patent 6,369,603 to *Johnston et al.* (the *Johnston* reference). The Examiner asserts that the reference is in an analogous art to the *Powell* reference because they are from a similar problem of solving for RF coupling device. However, as stated in the previous response, the *Johnston* reference does not disclose an RF coupling device. The *Johnston* reference discloses an apparatus for measuring the minority carrier lifetime of a semiconductor sample using radio frequency. In addition, the Office Action stated that the *Johnston* reference shows that a "predetermined distance between two coupling elements (244,232) can be tuned to compensate for the nonlinear spurs using metal variable capacitors (Col. 20 lines 50-60)." However, these two elements in the *Johnston* reference are a semiconductor sample that is stimulated by a laser 232 to generate radio waves and an antenna 244 to receive the radio waves radiated from the sample. These are not an input signal path to a power amplifier and a predistortion linearizer. Furthermore, there is no suggestion to combine the *Powell* reference with the *Johnston* reference since the two references are in a completely different field. Even if combined, the two references would fail to meet the requirements of the claims since the antenna and semiconductor sample as shown in the *Johnson* reference cannot be used with a predistortion linearizer to reflect a distorted signal onto the input signal path of a power amplifier.

For the above reasons, the *Powell* reference and the *Johnston* reference fail to teach or suggest the requirements of the present claims.

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CONCLUSION

This amendment places the application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

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Dated: March 23, 2004

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